JUN 13 2001

(10)

No. 99-1996

IN THE

Supreme Court of the United States

J.E.M. AG SUPPLY, INC. (D/B/A FARM ADVANTAGE, INC.), FARM ADVANTAGE, INC., LARRY BENZ, MERLE PRUETT (D/B/A SIOUXLAND SEEDS, INC.), KEVIN WOLFSWINKEL, TIM KAMSTRA, AND TOM EISCHEN SEED & CHEMICALS,

Petitioners,

v.

PIONEER HI-BRED INTERNATIONAL, INC.,

Respondent.

On Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

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BRIEF AMICUS CURIAE FOR THE AMERICAN SEED TRADE ASSOCIATION IN SUPPORT OF RESPONDENT

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BRIEF AMICUS CURIAE FOR THE AMERICAN SEED TRADE ASSOCIATION IN SUPPORT OF RESPONDENT

STATEMENT OF INTEREST OF AMICUS CURIAE

Founded in 1883, the American Seed Trade Association ("ASTA") is a voluntary, nonprofit, national trade association which represents over 500 research intensive companies engaged in the discovery, development, and marketing of new seed varieties.[1] ASTA members annually invest mil-

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[1] Pursuant to this Court's Rule 37.6, we note that no part of this brief was authored by counsel for any party, and no person or entity other than the amicus curiae filing this brief made a monetary contribution to the preparation or submission of the brief.

lions of dollars in research and development of new seed varieties by both traditional breeding methods, such as hybridization, and newer methods involving genetic modification, to produce new plant varieties and make American agriculture more productive and the country's food supply more plentiful and nutritious. ASTA's active members constitute over 95% of all active seed companies in the United States. More than 60% of ASTA's active members are small businesses, having annual sales of $1 million or less.

ASTA members hold over 1/3 of the more than 1800 utility patents which have been granted by the U.S. Patent & Trademark Office claiming plant-related subject matter. If such patents are invalidated, ASTA members would incur substantial losses of both time and money invested by them in obtaining U.S. utility patents for plant-related improvements, in protecting the intellectual property created by those improvements, and in licensing that intellectual property to others. In addition, the viability of their intellectual property would be seriously jeopardized and their incentive for further research and development would be undermined.

This brief is filed with the written consent of all parties pursuant to this Court's Rule 37.2; the requisite letters of consent have been filed with the Clerk.

STATEMENT OF THE CASE

This is a suit by Pioneer Hi-Bred International, Inc. ("Pioneer") against petitioners (collectively "Farm Advantage") for infringement of Pioneer's 17 utility patents for seed-related inventions. Each of these 17 utility patents was duly obtained pursuant to 35 U.S.C. § 101, *et seq.*, after examination in the specialized art units of the U.S. Patent & Trademark Office. That examination process, which is the same as that applied to all utility patent applications irrespective of technology, involved examination of each of Pioneer's seed-related patent applications for compliance with statutory requirements of novelty (35 U.S.C. § 102), non-obviousness (35 U.S.C. § 103) and sufficiency of disclosure (35 U.S.C.

§ 112). Each of these 17 patents was found not only to claim a new variety, but also to have documented substantial evidence of the new variety's non-obviousness—*i.e.*, its unexpected qualities of an inventive nature.

In this case, Farm Advantage filed a motion for summary judgment prior to a trial on the merits of the patent infringement claims, asserting that all of the claims of Pioneer's 17 utility patents were invalid because the claims did not fall within the classes of allowable statutory subject matter under 35 U.S.C. § 101. Because Farm Advantage could not dispute that the language of § 101 was sufficiently broad to encompass seed-related technology, it argued that Congress, by passing the Plant Variety Protection Act of 1970 (the "PVPA"),[2] intended that the PVPA be the sole and exclusive method for protecting inventive new seed-based plant varieties.

The trial court denied Farm Advantage's summary judgment motion, finding that the PVPA is not the sole and exclusive method for protecting inventive new seed corn varieties and that nowhere does the law provide that one has to make an election of intellectual property coverage under either the utility patent statute or the PVPA. Pet. App. 39. In reaching its decision, the trial court evaluated the scope of patentable subject matter afforded by § 101, as interpreted in *Diamond* v. *Chakrabarty*, 447 U.S. 303 (1980), and discussed in the legislative history of the utility patent and PVPA statutes. Pet. App. 29-30. The trial court concluded it could find no explicit support in the legislative history for the premise that Congress intended to restrict or limit the scope of patentable subject matter available under § 101 by adopting the PVPA. *Id.*

Farm Advantage appealed the denial of its summary judgment motion to the Court of Appeals for the Federal Circuit. The Federal Circuit then considered anew the question of whether, by passing the PVPA, Congress had intended that

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[2] 7 U.S.C. § 2321, *et seq.*

the PVPA be the sole and exclusive method for protecting inventive new varieties of seed-based plants. Guided by *Chakrabarty* and the legislative history of the PVPA, the Federal Circuit concluded that the "patentable subject matter under § 101 includes seeds and seed-grown plants," and affirmed the trial court's denial of Farm Advantage's summary judgment motion. *Pioneer Hi-Bred International, Inc.* v. *J.E.M. Ag Supply, Inc.*, 200 F.3d 1374, 1376 (Fed. Cir. 2000).

Farm Advantage then sought the review of this Court, which granted certiorari on February 20, 2001.

SUMMARY OF ARGUMENT

I. U.S. patent protection is available to all whose inventions meet the statutory requirements of patentability and disclosure mandated by 35 U.S.C. § 101, *et seq*. As an initial requirement, inventions must fall within the four classes of qualifying subject matter delineated in § 101, which broadly states that patents can be obtained for "any new and useful process, machine, manufacture or composition of matter, or any new or useful improvement thereof . . . ." Congress has not placed further restrictions on the statutory subject matter for which a patent can be obtained beyond the four broad categories recited in § 101. Indeed, in *Chakrabarty*, this Court recognized that "[i]n choosing such expansive terms as 'manufacture' and 'composition of matter,' modified by 'any,' Congress plainly contemplated that the patent laws would be given wide scope." 447 U.S. at 308.

In addition to the requirement of claiming an invention which falls within the broad classes of statutory subject matter, as stated above, a patentable invention must also meet the novelty, non-obviousness, and disclosure requirements of 35 U.S.C. §§ 102, 103, and 112, respectively. However, it has not always been possible for inventions involving living organisms to meet the disclosure requirements of § 112. In fact, in 1970, seed- and plant-related inventions rarely met these requirements. So, in 1970, in the absence of any clear way for plant-related inventions to meet the disclosure

requirements of § 112, Congress was motivated to enact the PVPA to provide "patent-like" coverage for new, sexually reproduced plant varieties. At the time of the PVPA enactment, Congress did not amend § 101 to exclude seed- or plant-related inventions from utility patent coverage.

In contrast to 1970, today seed- and plant-related inventions routinely meet the statutory disclosure requirements of § 112. Therefore, inasmuch as Congress has made no explicit statement evidencing its intent to exclude seed- and plant-related inventions from utility patent coverage, utility patents duly granted by the U.S. Patent & Trademark Office for such inventions are entitled to the statutory presumption of patent validity afforded by 35 U.S.C. § 282, just as patents relating to every other technology are.

II. Utility patents provide needed incentives to inventors of plant-related inventions to move forward into the frontiers of agricultural science, just as utility patents provide incentives in other areas of endeavor. The fundamental principle of the constitutional patent grant—"To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries"[3]—is as applicable to inventors of new and inventive plant varieties as to inventors of new machines or processes.

A. Further advances in agricultural technology are required to feed growing populations in a sustainable environment. The development of enhanced seeds—*i.e.*, seeds which increase yields and/or decrease reliance on herbicides and pesticides—is one way to achieve these advances. Enhanced seeds and plants, which hold the promise of higher crop yields, decreased pesticide and herbicide usage, and improved nutrition, are developed at great cost by seed companies, plant developers, universities, and individuals. These costs often cannot be recouped in a single year, as they would make the cost of enhanced seeds prohibitively high.

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[3] U.S. Const. art. I, § 8, cl. 8.

The exclusivity provided by utility patent coverage, pursuant to 35 U.S.C. § 271, has sufficient scope to enable developers of seed-related inventions a chance to recoup research and development costs, because improvements derived from patented inventions which are covered by the claims of a previously patented invention are subject to both the dominant earlier patent and any utility patent obtained for a non-obvious improvement. Thus, the patent holder may charge license fees for the use of patented seed-related technology, whether for the originally developed invention or for improvements covered by a dominant utility patent, and costs associated with the product development cycle for new varieties may be recovered.

B. The public has a continuing interest in applying the full disclosure requirements of the utility patent statute to seed-related inventions. These disclosure requirements, as codified in § 112 of the patent statute, mandate that all utility patent applications contain sufficient disclosure to enable one of ordinary skill in the art to which the invention pertains to practice the invention. Section 112 also requires a description of the best mode for practicing the invention, as contemplated by the inventor at patent application filing.

Due in part to the presence of public depositories in which seed and germplasm deposits can now be made, and also to the ability to accurately describe lineage, trait, and genetic information about seeds, plants, and cellular materials, full disclosure of seed- and plant-related inventions can now be made available to the public. Accordingly, the disclosure requirements of § 112 can now be met for seed- and plant-related inventions. The fullness with which seed- and plant-related inventions can now be described and the open-ended nature of patent specifications together provide inventors of new seed- and plant-related inventions an opportunity to document aspects of their inventions far beyond the description requirements of a PVPA application. This is of great benefit to the public, because further development of new plant varieties are made possible, with the risk of undocumented characteristics in new varieties minimized and the

improper use of newly developed strains avoided. The public would lose these benefits of full disclosure should utility patents for seed- and plant-related patents be invalidated.

C. Almost 400 different individuals, universities, research institutes, seed companies, corporate entities, and governmental units have obtained a total of over 1800 utility patents for their seed- and plant-related inventions. Such widespread use of the patent process clearly confirms that the intellectual property protection afforded by utility patents provides a meaningful economic incentive to the many different entities undertaking plant-related research.

ARGUMENT

I. FEDERAL LAWS PROVIDE FOR PATENT PROTECTION FOR ALL INVENTIONS MEETING STATUTORY REQUIREMENTS OF PATENTABILITY AND CONGRESS HAS NOT EXPLICITLY EXCLUDED SEED- AND PLANT-RELATED INVENTIONS FROM QUALIFYING AS PATENTABLE SUBJECT MATTER.

To obtain a U.S. utility patent for a new invention, one must meet the statutory requirements of patentability pursuant to 35 U.S.C. § 101, *et seq*. Initially, § 101 broadly states that patents can be obtained for "any new and useful process, machine, manufacture or composition of matter, or any new or useful improvement thereof . . . ." Thereafter, §§ 102 and 103 detail the requirements of novelty and non-obviousness for patentable inventions. Finally, § 112 describes the disclosure requirements applicable to patentable inventions and the applications describing the claimed inventions.

Congress has not placed restrictions on the statutory subject matter for which a patent can be obtained beyond the four broad categories recited in the statute. Indeed, this Court, in its 1980 decision in *Chakrabarty,* recognized that "[i]n choosing such expansive terms as 'manufacture' and 'composition of matter,' modified by 'any,' Congress plainly contemplated that the patent laws would be given wide scope." 447 U.S. at 308.

It is worth noting that the four categories delineated in § 101 broadly describe categories of inventive subject matter—*i.e.*, processes, machines, manufactures and compositions of matter—which stretch across all fields of technology. Section 101 does not define or exclude patentable subject matter by technology type, and Congress has not manifested any clear intent to separately identify and exclude a single technology from qualifying as patentable subject matter under § 101.

The Plant Patent Act of 1930 ("PPA")[4] was enacted to provide specific patent protection for inventions relating to plants reproduced by asexual reproduction. It did not amend § 101, but rather added specific patent protection for plant-related inventions which could not, at that time, meet the disclosure requirements of § 112 for plants reproduced by asexual reproduction. In recent years, inventions related to such asexually reproduced plants have qualified for utility patent coverage under § 101, and hundreds of utility patents have been granted for such plant-related inventions. One example of a such a utility patent covering an asexually reproduced plant is U.S. Patent No. 4,686,318 for "Kiwifruit Plant" which was granted on August 11, 1987, to two individuals.

Similarly, in 1970, the PVPA was enacted to provide "patent-like" coverage for new varieties of plants reproduced by seed. At that time, there was generally no patent or patent-like protection available for sexually reproduced plants. However, this was due to technical limitations of the time, which made it all but impossible to meet the full disclosure requirements of the utility patent statute, as required by § 112.

In enacting the PVPA, Congress made it clear that the PVPA was not intended to "alter protection currently available within the patent system." S. Rep. No. 91-1246, at 2 (1970). *See also Ex parte Hibberd*, 227 U.S.P.Q. 443, 445

[4] 35 U.S.C. §§ 161-164.

(Bd. Pat. App. & Interf. 1985). It has now been over 30 years since enactment of the PVPA and Congress has not changed its position in this regard. Had Congress wanted to alter the protection for plants available under the patent system after the 1980 *Chakrabarty* decision, it could have done so by either amending the PVPA in some way or making a clear statement of its intent in the legislative history to the PVPA amendments of 1994. Congress did not do so.

Petitioners would have this Court carve out seed-related inventions from utility patent coverage in derogation of the Court's holding in *Chakrabarty* that "Congress plainly contemplated that the patent laws would be given wide scope" and that § 101 should be interpreted in accordance with Congress' intent that it "include anything under the sun that is made by man." However, carving out seed-related inventions from utility patent coverage would create a substantial inconsistency in the law because new varieties of asexually reproduced plants would continue to qualify for both U.S. plant patent coverage and utility patent status. If one's development work relates to asexually reproduced plants, one can apply for a utility patent and undergo a rigorous examination of the invention by the U.S. Patent & Trademark Office to determine if the work meets the stringent requirements of patentability imposed by §§ 102, 103, and 112, *et seq.*, but if one's development work relates to sexually reproduced plants, one cannot do so.

II. THE ECONOMIC INCENTIVE PROVIDED BY THE CONSTITUTIONAL PATENT GRANT IS AS NECESSARY TO THE DEVELOPMENT OF PLANT-RELATED INVENTIONS AS IT IS TO THE FURTHERANCE OF EVERY OTHER TECHNOLOGY.

Utility patents provide needed incentives to inventors of plant-related inventions to move forward into the frontiers of agricultural science, just as utility patents provide incentives in other areas of endeavor. Indeed, the fundamental principle of the constitutional patent grant—"To promote the progress of science and useful arts, by securing for limited times to

authors and inventors the exclusive right to their respective writings and discoveries"[5]—is as applicable to inventors of new and inventive plant varieties as to inventors of new machines or processes.

The economic incentive provided by granting to inventors a period of exclusive use of their inventions—irrespective of the subject matter—is recognized as a significant driving force for scientific development. The public benefits in two ways: (1) by being able to use patented inventions, whether through purchase or licensing, and (2) by receiving full disclosure of patented inventions, thereby allowing for further improvements to the patented invention and application to other products and processes of the inventive concepts disclosed. In this way, "the patent system represents a carefully crafted bargain that encourages both the creation and the public disclosure of new and useful advances in technology, in return for an exclusive monopoly for a limited period of time." *Pfaff* v. *Wells Electronics, Inc.*, 525 U.S. 55, 63 (1998). This "patent bargain" is as applicable to seed companies and plant developers as it is to every other industry in the United States, including medical device companies, semiconductor manufacturers, computer software developers, automobile companies, and farm equipment suppliers.

A. The Licensing Of Patented Seed-Related Technology Funds The Development Cycle For New Varieties Needed To Produce Crops To Feed Growing Populations In An Environmentally Sustainable Way.

As populations have grown, the amount of arable land in the U.S. and elsewhere in the world has steadily decreased. The burgeoning world population—reaching over 6 billion people in the year 2000—has brought about the steady conversion of farmland into home and apartment sites, shopping centers, parking lots, and office buildings. This phenomenon is particularly evident in the United States, where, in 1950, farm acreage totaled over 1.1 billion acres

[5] U.S. Const. art. I, § 8, cl. 8.

and by 1997, farm acreage had shrunk to just over 0.9 billion acres—a decrease of almost 20%.[6]

Despite this continuing decrease in arable land, food shortages have been avoided in large part by the increased productivity and yield achieved by American farmers. From 1940 to 1970, American farmers increased their per acre yield of corn by 150%, of wheat by 102%, and of soybeans by 64%.[7] From 1970 to 2000, American farmers achieved further increases in per acre yields of corn by almost 90%, of wheat by 35%, and of soybeans by 42%.[8] From 1940 to 2000, total harvested corn grown for grain increased from 2.2 billion bushels to over 9.9 billion bushels.[9] Total harvested wheat increased from 0.8 billion bushels to over 2.2 billion bushels in the same period.[10]

One means of achieving such remarkable results in crop yields has been an increase in the use of chemical herbicides and pesticides. As a consequence, however, there are increasing environmental impact issues relating to the use of such chemicals. Clearly, further advances are needed in agricultural technology to feed the burgeoning population in an environmentally sustainable manner, even as the amount of arable land continues to shrink. The development of enhanced seeds—*i.e.*, seeds which can increase yields and decrease reliance on herbicides and pesticides—is one way to achieve these advances.[11]

[6] *See* National Agric. Statistics Serv., U.S. Dep't of Agric., *Trends in U.S. Agriculture—Farm Numbers and Land in Farms, available at* http://www.usda.gov/nass/pubs/trends/farmnumbers.htm.

[7] *See* National Agric. Statistics Serv., U.S. Dep't of Agric., *available at* http://www.nass.usda.gov:81/ipedb/report.htm.

[8] *Id.*

[9] *Id.*

[10] *Id.*

[11] Nick Smith, *Seeds of Opportunity: An Assessment of the Benefits, Safety, and Oversight of Plant Genomics and Agricultural Biotechnology* (Apr. 13, 2000) (prepared by Chairman Nick

Enhanced seeds may be created with conventional breeding programs, such as hybridization and generational improvements.[12] The Pioneer Hi-Bred International, Inc. patents at issue in this case cover such kinds of enhanced seeds—*i.e.*, inventive new varieties developed through conventional breeding programs. Enhanced seeds may also be created through the use of genetic modification techniques which cause enhanced expression of desired characteristics.[13] A holding by the Court that utility patent coverage is not available for new and inventive sexually reproduced plants would prevent patent coverage for enhanced seeds created through conventional breeding programs as well as those created using genetic modification techniques.

There is no question that enhanced seeds increase yields and decrease reliance on herbicides and pesticides. An April 2000 U.S. Department of Agriculture publication entitled "Genetically Engineered Crops for Pest Management in U.S. Agriculture: Farm-Level Effects" summarizes numerous studies of enhanced corn, cotton, and soybean seeds.[14] With respect to Bt cotton—cotton which has been genetically modified to express higher levels of Bt proteins, a natural insecticide—the publication reports that, in 1997, the farm level effects included an increase in cotton yield, an increase in farm-level net returns, and a decrease in the use of certain

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Smith of House Subcommittee on Basic Research and transmitted to the House Committee on Science, 106th Congress), *available at* http://www.house.gov/science/smithreport 041300.pdf.

[12] *See* National Agric. Statistics Serv., U.S. Dep't of Agric., *Trends in U.S. Agriculture—Corn Hybridization*, *available at* http://www.usda.gov/nass/pubs/trends/cornhybridation.htm.

[13] *See, e.g.*, U.S. Dep't of State, *Healthy Harvests: Growth Through Biotechnology* (Mar. 21, 2000), *available at* http://www.state.gov/www/global/oes/fs-biotech_growth_000321.html.

[14] J. Fernandez-Cornejo, *et al.*, U.S. Dep't of Agric., Agric. Economic Rep. No. 786, *Genetically Engineered Crops for Pest Management in U.S. Agriculture: Farm-Level Effects* (Apr. 2000), *available at* http://www.ers.usda.gov/publications/AER 786.

insecticides.[15] With respect to adoption of new varieties of herbicide-tolerant soybeans, overall total herbicide usage decreased. The report concludes that

> farmers believe that the use of [genetically engineered] crops will offer them many benefits, such as higher yields, lower pest management costs, and greater cropping practice flexibility. While benefits and performance of these crops vary greatly by region because of pest infestation levels and other factors, the rapid adoption rates are evidence that, for many farmers, expected benefits outweigh expected costs.[16]

Research and development costs associated with use of enhanced seeds, whether to increase crop yields or decrease usage of chemical herbicides and pesticides, are very high. Indeed, by 1994, private companies were spending over $338 million dollars on plant breeding research and development.[17] Biotechnology research in this area is particularly expensive. By 1989, expenditures on biotechnology related to plant breeding in the U.S. already constituted at least 33% of the plant breeding research expenditures.[18]

To keep the product development cycle in motion amongst U.S. seed companies, inventors and their companies must recoup their development costs through license fees. These fees are typically set forth in utility patent licenses granted by owners of utility patents for plant-related inventions to seed distributors and others who market their seed, and also to

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[15] *Id.*

[16] *Id.*

[17] R.R. Kalton, *et al.*, *Inputs in Private Sector Plant Breeding and Biotechnology Research Programs in the United States*, 5 Diversity No. 4, 22-25 (1989).

[18] K.J. Frey, Iowa State Univ., Special Rep. 98, *National Plant Breeding Study-I: Human and Financial Resources Devoted to Plant Breeding Research and Development in the United States in 1994* (1996).

growers, who use the seed to grow crops for consumption by humans or livestock.

B. The Public Benefits From Applying The Full Disclosure Requirements For Utility Patents To Seed- and Plant-Related Inventions Because It Allows Plant Developers To Improve Upon The Patented Inventions Of Others.

U.S. patent law requires that all utility patent applications

> contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same . . . . [35 U.S.C. § 112.]

This statutory requirement is met in plant-related utility patents by: (1) including a detailed variety description in the specification of each utility patent application, and (2) depositing seeds or genetic material with a public depository. For example, referring to U.S. Patent No. 5,506,367 for INBRED CORN LINE PHP38 (which is assigned to respondent Pioneer Hi-Bred International, Inc. and is one of the bases of the underlying patent infringement in the present case), the Detailed Description of the Invention at columns 7 and 8 includes Variety Description Information detailing corn ear, tassel, and leaf measurements and disease resistance features. The Detailed Description concludes with the following description of the seed deposit:

> Applicant has made a deposit of at least 2500 seeds of inbred PHP38 with the American Type Culture Collection (ATCC), Rockville, Md. 20852 USA, ATCC Deposit No. 75612. The seeds deposited with the ATCC on November 9, 1993 were taken from the same deposit maintained by Pioneer Hi-Bred International, Inc., 700 Capital Square, 400 Locust Street, Des Moines, Iowa 50309-2340 since prior to the filing date of this application. This deposit of Inbred Corn Line PHP38 will be maintained in the ATCC

> depository, which is a public depository, for a period of 30 years, or 5 years after the most recent request, or for the effective life of the patent, whichever is longer, and will be replaced if it becomes nonviable during that period.

When patent holders meet the disclosure requirements of § 112, seed and plant breeders are able to improve upon the inventive features of new varieties.

These disclosures also have another benefit—they can help avoid improper use of newly developed varieties by describing incompatibilities of a patented variety. While the PVPA does have disclosure requirements of its own, it does not require disclosure of incompatibilities. Because the PVPA disclosure requirements are minimal, undocumented characteristics are quite possible. In contrast, under the utility patent statutory requirement, the inventor must describe not only how to make a patented invention, but also how to use the invention. In some cases, this may require an inventor to describe how the new variety cannot be used. By doing so, improper crosses and crop practices can be avoided.

The only way to ensure that plant- and seed-related research and inventions flowing from such research are fully disclosed to the public is to make sure the "patent bargain" remains applicable to plant-related technologies. In this way, the public further benefits from the full disclosure of new inventions. Just as in all other technologies, utility patent disclosures for plant-related inventions will continue to provide a springboard for further improvements and a deeper understanding of seeds, plants, and crops.

C. Invalidating Utility Patents For Seed- and Plant-Related Inventions Would Unravel Established Relationships Among Inventors, Seed Companies, Universities, Government Entities, And Growers.

The more than 1800 utility patents claiming plant-related inventions are owned by many different individuals and entities. Over 30 of these patents do not even list an assignee

on their title page, indicating that the individual inventor(s) owned the technology at the time the patent was granted.[19] These individuals would of course be directly affected should their patents be invalidated here.

The bulk of the utility patents claiming patent-related inventions are assigned on their face to corporations. Some of these companies are smaller seed companies—like Agripro Seeds, Inc., Cornuts Hybrids, Inc., Crookham Company, Dairyland Seed Co., Inc., FFR Cooperative, Gold Kist, Inc., Harris Moran Seed Company, J.C. Robinson Seed Company, NorCal Wild Rice, NPI Seed, Inc., Optimum Quality Grains, L.L.C., Pan American Seed Company, Resource Seeds, Inc., RiceTec, Inc., Rupp Seeds Inc., and United AgriSeeds—each of which owns only one or two U.S. utility patents. Larger companies—for example, Garst Seed Company, Midwest Oilseeds, Inc., and Seminis Vegetable Seeds, Inc.—have obtained a dozen or so U.S. utility patents covering plant-related inventions. Of course there also are yet larger companies which have invested substantial money and effort in research and development projects and in the legal expenses of applying for and obtaining twenty or more such utility patents. These companies include Asgrow Seed Company, Dekalb Genetics Corp., E.I. Du Pont de Nemours and Company, Holden's Foundation Seeds, Inc., Monsanto Corporation, Novartis AG, Pioneer Hi-Bred International, Inc., Stine Seed Farm, Inc., and Zeneca Limited.

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[19] In accordance with 35 U.S.C. § 152, 37 C.F.R § 3.81, and the Manual of Patent Examining Procedure § 307 (7th ed. 2000), a patent will issue to an assignee, provided an assignment is recorded in the U.S. Patent & Trademark Office on or before payment of an issue fee and the assignee's name and address are both identified on the Issue Fee Transmittal. Accordingly, a patent which does not list an assignee may in fact have been assigned, but the assignee is not listed because the assignment was not recorded or the assignee's name was omitted from the Issue Fee Transmittal. However, it is a standard practice of patent practitioners to take the steps necessary to list assignees on patents which are assigned.

The last three decades have seen a growing reliance by universities and colleges in the United States on income generated from the licensing of utility patents for inventions developed in university research programs and subsequently found patentable by the U.S. Patent & Trademark Office. This trend is also present in the agricultural arts, as is evidenced by the fact that over 230 of the more than 1800 plant-related utility patents which have been granted list one of the following universities as the assignee on the face of the patents:

University of Arizona
University of California
California Institute of Technology
Carnegie Institution
Colorado State University
Cornell Research Foundation, Inc.
Drexel University
Duke University
University of Florida
University of Hawaii
Northern Illinois University
Iowa State University
Kansas State University
University of Kentucky
Louisiana State University
University of Maryland
University of Massachusetts
Massachusetts Institute of Technology
Michigan State University
University of Minnesota
Mississippi State University
University of Montana
University of Nebraska
University of Nevada
University of Oklahoma
Ohio State University
New York University
North Carolina State University
North Dakota State University

Northeastern University
Pennsylvania State University
Purdue Research Foundation
Rockefeller University
Rutgers, the State University of New Jersey
Rockefeller University
University of Tennessee
Texas A&M University
Vanderbilt University
Yale University
Washington State University
Australian National University (Australia)
University of Queensland (Australia)
Queen's University at Kingston (Canada)
University of British Columbia (Canada)
University of Guelph (Canada)
Helsinki University (Finland)
University of Glasgow (Scotland)
Chaing Mai University (Thailand)

Governmental agencies have also obtained U.S. utility patents for plant-related inventions. The Canadian government holds ten utility patents for plant-related inventions.[20] The State of Israel's Ministry of Agriculture is listed on two plant-related U.S. utility patents.[21]

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[20] A Canadian federal court recently addressed the analogous issue to that confronting this Court when confronted with the question of whether the Canadian Plant Breeders' Rights Act of 1990 evidenced Parliament's intent "that intellectual property rights pertaining new plant varieties are to be governed by legislation other than the Patent Act and only to the extent permitted under the [Plant Breeders'] Act." *Monsanto Canada, Inc.* v. *Schmeiser*, [2001] F.C. 256, *available at* 2001 Fed. Ct. Trial LEXIS 174, at *46 (quotation omitted). The Canadian court ruled that "the [Plant Breeders' Rights Act] was not intended to, and by its terms it does not, preclude registration under the Patent Act of 1990 inventions that relate to plants, and that may lead to new varieties or characteristics of plants." *Id.* at *48-49.

[21] Co-existence of utility patent coverage for plant- and seed-related inventions and certification status for new plant varieties is consistent with the 1991 Act of the International Convention for the Protection of New Varieties of Plants ("UPOV"). *See* S. Treaty Doc. No. 104-17. The Act is silent as to the title of protection under which a plant breeder's rights may be granted, thus affording member States the freedom to provide protection for plant varieties both through patents and through certification programs.

Even more significant—thirteen of the more than 1800 utility patents which have been granted for plant-related inventions list "[t]he United States as represented by the Secretary of Agriculture" as the assignee on the title page of the patent.[22] Clearly, the U.S. Department of Agriculture, which administers the PVPA, does *not* see the PVPA as the sole form of intellectual property applicable to seeds.

Indeed, the Department of Agriculture's practices in this regard are consistent with the Solicitor General's expression of the unambiguous views of the United States in its Brief for the United States as Amicus Curiae filed with this Court in January 2001. It is the view of the United States that the Federal Circuit was correct in concluding that (1) there was nothing in the text of § 101, the PPA, or the PVPA which narrows the scope of the utility patent statute by excluding plants from eligibility for protection, and (2) the asserted conflict between the PVPA and the utility patent statute is simply the difference in the rights and obligations imposed by the statutes, which can be applied simultaneously without difficulty.

Clearly, a key element of the fabric of agriculture in the United States today is the business relationships which arise out of the intellectual property rights obtained by the hundreds of assignees owning duly granted U.S. utility patents for seed-related inventions. These long-established relationships among growers, distributors, developers, and universities, which have been created in reliance on such patents, promote further research and development of new seed varieties. To invalidate the utility patents upon which these

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[22] *See* U.S. Pat. Nos. 5,571,706, 5,650,558, 5,689,054, 5,710,367, 5,723,766, 5,792,934, 5,811,636, 6,077,995, 6,111,168, 5,959,180, 5,914,450, 6,156,956, and 6,174,725.

relationships are based would be inappropriate, given that inventions such as these clearly qualify as patentable subject matter under § 101 and can fully meet the disclosure requirements of § 112.

CONCLUSION

For the foregoing reasons, the judgment below should be affirmed.

Respectfully submitted,

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